

Capability Statement: Gabion Installation



Gabion baskets and mattresses are large 'cages' filled with rock. They are manufactured from galvanised steel and are available in a variety of shapes and sizes, including varying wire thickness, wire type and aperture size. There are two main types of products available: 'weldmesh' and 'double twist, hexagonally woven wire mesh'. The difference is in the type of wire used to manufacture each type. Weldmesh cages are generally more durable and stable and are supplied in panels for baskets to be assembled on site. Hexagonally woven wire mesh baskets are flexible and are supplied pre-assembled. Cages are manufactured to withstand various site conditions including corrosion; cages can also be PVC coated for additional protection.

Gabion baskets are a hard-engineering approach to erosion control and are primarily used along the river in similar situations to river walls. Gabion baskets are also popular as walls in landscape projects where they can be filled with recycled material to create an urban feature wall. Natural Area can design, supply and install gabion baskets for a variety of purposes and Gabion baskets can be custom built to suit any site. The challenges involved with gabion basket installation include:

- ▶ type and dimension of fill rock specified and availability from suppliers
- ▶ type of footing required
- ▶ hand-packing cages to create a smooth even finish
- ▶ protection of cages from vandalism and damage
- ▶ compaction of fill material to prevent 'sinking' and 'bulging'
- ▶ site access.

Natural Area can supply and install all types of gabion baskets and have developed extensive experience by overcoming the challenges listed.

▶ City of Melville, Point Walter Reserve

Natural Area installed almost 100 linear meters of gabion baskets at Point Walter Reserve. The purpose was twofold: first, to mitigate the loss of sediment from the beach and second, they enhance the amenity of the area by creating a wall for users to sit on. The baskets, which were 2 m x 1 m x 0.5 m, galvanised steel, were installed as three separate walls in a semi-circle layout to create three distinct beach nodes. The main challenge at the site included constant inundation of the work area by groundwater. Due to the aesthetic nature of the baskets, each basket needed to be hand-packed with limestone rock that was between 50 and 100 mm in diameter. The works were tedious but the outcome was worthy and exceeded the expectations of the Client.

▶ Brierty Contractors, Trinity @ Alkimos

Natural Area installed 313 gabion baskets at the new housing development in Alkimos. The baskets were used to create a sump as part of a public open space. The baskets specified by the project engineer were 'double twist, hexagonally woven wire mesh' baskets that are more flexible than the 'weldmesh' baskets. Challenges at this site included lack of quality fill which made construction difficult. The gabion baskets functioned as a wall to delineate the sump; the sump was later revegetated by the developer.

▶ City of Vincent, Walters Brook

Natural Area installed 88 gabion baskets and mattresses of varying sizes at Walters Brook in Banks Reserve. The gabion mattresses formed a foundation on which the baskets were constructed. The mattresses will also act as a sediment trap for sediment flowing through the drainage channel. Baskets were used to create a wall to mitigate erosion of the banks. Natural Area provided detailed designs for this project, including engineering drawings, and supplied all materials.